CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.04/KRIDL/CSR-01/740c/CUBE/2014-15 25.02.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
* Sample ID	: Drain Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 20.02.2015

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	28.01.2015	25.02.2015	8.150	482.3	21.44
2	28.01.2015	25.02.2015	8.290	496.3	22.06
3	28.01.2015	25.02.2015	8.332	519.3	23.08

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

#23|14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.04/KRIDL/CSR-01/740c/CUBE/2014-15 13.02.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
* Sample ID	: Covering Slab Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 13.02.2015

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.01.2015	13.02.2015	8.190	482.6	21.45
2	16.01.2015	13.02.2015	8.258	502.6	22.34
3	16.01.2015	13.02.2015	8.375	529.6	23.5

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

AEE

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.04/KRIDL/CSR-01/740c/CUBE/2014-15 16.02.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
* Sample ID	: Coping Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{15}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 16.02.2015

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	19.01.2015	16.02.2015	8.139	355.6	15.80
2	19.01.2015	16.02.2015	8.252	362.3	16.10
3	19.01.2015	16.02.2015	8.335	375.2	16.68

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

AEE

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.04/KRIDL/CSR-01/740c/CUBE/2014-15 17.02.2015

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
* Agency	: **Technical Manager (West),** KRIDL, Bangalore.
* Name of the work	: Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
* Sample ID	: Coping Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{15}
Compressive Strength as on	: 28^{th} day
Sample Received on	: 17.02.2015

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	20.01.2015	17.02.2015	8.129	356.6	15.85
2	20.01.2015	17.02.2015	8.250	368.3	16.37
3	20.01.2015	17.02.2015	8.310	379.3	16.86

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

AEE

VISHWANATH .C
Quality Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.04/KRIDL/WMM/AIV/2014-15 21.01.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	21.01.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	301	
4	Aggregare Impact value = percent fines	21.11	21.20	
	100* (W_2/W_1)%			21.16

Comments:

→ Maximum allowable Aggregare Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laborato

→ The results indicated above are based on the tests carried out on the samples received in the labo

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

AEE

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.04/KRIDL/WMM/S-1/2014-15 21.01.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of Work	Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	21.01.2015

Result : Flakiness Index = **11.90%**

Elongation Index = **13.85%**

Result : Combined Flakiness & Elongation index 25.75%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laborat

→ Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079

AEE

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.04/KRIDL/SDBC/AIV/2014-15

21.02.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layour in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	21.02.2015

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	87	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregare Impact value = percent fines $100^* (W_2/W_1)\%$	22.37	22.56	22.46

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory.
- The results indicated above are based on the tests carried out on the samples received in the laboratory.
- Any Query regarding the report must be reported within 30 days from the date of testing.

****

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

A.E.E.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.04/KRIDL/SDBC/Shape_T/2014-15 : 21.02.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	: BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 21.02.2015

Result : Flakiness Index = **12.35%**

Elongation Index = **13.26%**

Result : Combined Flakiness & Elongarion index **25.61%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrere is 30%

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory

Þ The results indicated above are based on the tests carried out on the samples collected by the laboratory

Þ Any Query regarding the report must be reported within 30 daysfrom the dare of testing

****

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.04/KRIDL/SDBC/Stripping/2014-15

21.02.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	21.02.2015

Type of binder : 60/70
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.3	3.40	96.60
2	3.4		
3	3.5		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

Note:

1. This test report should not be reproduced except in full, without written approval of the laboratory
2. The results indicated above are based on the tests carried out on the samples received in the laboratory
3. Any Query regarding the report must be reported within 30 days from the date of testing.

.....

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

AEE

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.04/KRIDL/SDBC/Sp_Wa/2014-15

21.02.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Yelahanka New Town Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to drains and asphalting to Main and Cross Roads in Allalasandra and Judicial Layout in Ward No. 04, BBMP, Bangalore.
Reference	BBMP/AEE/YNTSD/138/2014-15 Dated: 19.01.2015
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hormix Plant, Bangalore
Date of Testing	21.02.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basker	W_1 g	2013	2014	2015	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_3$ g	1258	1259	1260	
4	Weight of saturated surface dry aggregate in air	W_5 g	2017	2019	2020	
5	Weight of water equal to the volume of the aggregate	$(W_5 - W_6)$ g	759	760	760	
6	Weight of oven dried aggregate	W_4 g	2002	2003	2004	
7	Specific Gravity	$W_4/(W_5-W_6)$	2.638	2.636	2.637	2.637
8	Apparent Specific gravity	$W_4/(W_4-W_6)$	2.691	2.692	2.694	2.692
9	Water Absorption	$((W_5-W_4)*100)/W_4$	0.75%	0.80%	0.80%	0.78%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 30 days from the date of testing.

.....

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.